



## **Kurt Francis Joseph Heinrich**

We are dedicating this workshop to Kurt F. J. Heinrich at a most appropriate time; it honors Kurt's many contributions to the field of x-ray microanalysis made during the past 40 plus years, and it also honors him, though somewhat delayed, on his 80th birthday. With his family, Kurt emigrated from Austria (before World War II, he likes to note!) to Argentina where he received his PhD degree in Chemistry in 1949. In 1956 he emigrated to the United States to work at the E. I. DuPont de Nemours Experimental Station in Wilmington, DE where he became involved in x-ray fluorescence (XRF) but soon developed an interest in Electron Probe Microanalysis (EPMA) when DuPont purchased one of the first commercial Applied Research Laboratories (ARL) scanning electron microprobes.

Having set a foothold as a national and international leader in the development of the field of electron probe microanalysis, Kurt was lured in 1964 to the then National Bureau of Standards (NBS) in Washington, DC, to continue working in XRF and EPMA in the Spectroanalysis Section. (One of us, RBM, remembers visiting Kurt in 1964 at the old NBS site on Van Ness Street where he sat in front of a brand new ARL electron microprobe collecting data.) Kurt later became Chief of the Microanalysis Section, a position that he held for many years until 1980 when he became Chief of the Office of International Relations. This was a position for which he was ideally suited with his international scientific experience and fluency in six languages. During his career at NBS Kurt received the Department of Commerce Silver and Gold Medal Awards. Kurt also was one of the founders and second

President of The Electron Probe Analysis Society of America (now called the Microbeam Analysis Society, MAS), and he is now an honorary member of MAS and the Deutsche Verband für Materialforschung. In 1988 Kurt retired from the newly renamed NIST but has remained in contact with the Microanalysis Research Group, continuing to improve upon matrix correction procedures and providing sage advice when needed. Today, Kurt still enjoys participating in a lively, rational argument, and he continues to demonstrate his superb memory, ingenuity, and sense of humor.

Kurt's contributions extend to all aspects of the field of electron probe microanalysis. He authored a book of major importance on the theory and practice in EPMA (*Electron Probe Microanalysis*, Van Nostrand, NY, 1981) and was editor of several other publications, including proceedings of meetings and workshops that he organized (in particular, NBS Special Publication 298, *Quantitative Electron Probe Microanalysis*, 1968, and *Electron Probe Quantitation*, Plenum, NY, 1991). He has published more than 100 archival papers concerned with developments of EPMA instrumentation, improvements in microanalysis techniques, metallurgical and geological applications (including lunar samples and asbestos), characterization of microanalysis standards, uncertainties in quantitative EPMA and correction procedures, bibliographies of EPMA publications, tables of mass absorption coefficients and x-ray lines, development of matrix correction procedures, the early use of color in wavelength dispersive x-ray dot mapping, energy dispersive qualitative and quantitative analysis, and the use of Monte Carlo techniques in quantitative EPMA. This list is not all-inclusive; it demonstrates the diversity of problems Kurt has been concerned with throughout his long, successful career. One of his most significant and lasting contributions to EPMA is his work on mass absorption coefficients that entailed a novel set of empirical equations used to minimize the uncertainties in experimental data. He developed and published the first version while at DuPont and the second, which is still being used, at NIST.

In addition, Kurt has always been in demand (locally, nationally, and internationally) for his research presentations and courses on EPMA. He gives generously of his time and has always spattered his unique humor among descriptions of his scientific accomplishments.

We extend our heartfelt thanks to Kurt for sharing with us his knowledge and zest for learning and improving—not only in the field of EPMA but in all aspects of life.

**Dale E. Newbury  
Ryna B. Marinenko**